IN THE CLAIMS:

1. (Original) An arrangement for the suction removal of waste products including smoke and tissue particles in the ablation of biological tissue in ophthalmic surgery for shaping a cornea of an eye by laser radiation, comprising:

a tubular channel having an orifice through which laser radiation is directed to the tissue of the eye and through which waste products are sucked into the tubular channel; and

the tubular channel having an inner wall which has at least one outlet opening for a gas in a vicinity of the orifice and wherein flow of gas is directed to the center of the tubular channel.

2. (Original) The arrangement for the suction removal of waste products according to claim 1, wherein the inner wall of the tubular channel has at least one outlet opening for a gas in the vicinity of the orifice, wherein the flow of gas is directed from the outlet opening substantially opposite to a radiating direction of the laser radiation into the tubular channel.

3. (Original) The arrangement according to claim 1, wherein the tubular channel has a portion which tapers conically toward the orifice.

4. (Original) The arrangement according to claim 3, wherein the tubular channel has, at least in a conically extending portion, two chambers extending concentrically around its circumference, one of said chambers being provided for guiding gas to the outlet opening, and a second chamber being used for carrying away the sucked up gas, including the waste products.

5. (Original) The arrangement according to claim 1, wherein a plurality of outlet openings are provided and are arranged in a radial symmetric manner about the center of the tubular channel.

6. (Original) The arrangement according to claim 1, wherein outlet opening is provided which extends annularly.

7. (Original) The arrangement according to claim 6, wherein the outlet openings are widened to produce a diffusion effect.

8. (Original) The arrangement according to claim 6, wherein air is provided as gas and an outlet openings are connected with a compressor or with a pressure vessel filled with air.

9. (Original) The arrangement according to claim 1, wherein the inner wall of the channel has a plurality of suction openings arranged in a radial symmetric manner about the center of the channel and which communicate with a suction device.

10. (Original) The arrangement according to claim 9, wherein annular openings are provided and wherein the total cross section of outlet openings and the total cross section of the suction openings are structured so that the overpressure at the outlet openings and the vacuum at the suction openings, as well as the flow velocities in the outlet openings and the flow velocities in the suction openings are structured relative to one another in such a way that a first quantity of air sucked off a defined area on an eye per time unit is greater than a second quantity of air guided through the outlet openings by a factor between 1.1 and 1.3.

11. (Original) The arrangement according to claim 1, wherein a device is provided for alternately interrupting the laser radiation impinging on the tissue and the supply and suction of air.

12. (Original) The arrangement according to claim 1, wherein the channel is arranged so as to be swivelable relative to the laser radiation, wherein the laser radiation is a laser beam is enclosed by the channel in a preferred orientation of the tubular channel.

13. (Original) An arrangement for the suction removal of waste products including smoke and tissue particles in the ablation of biological tissue by laser radiation, comprising:

a tubular channel having an orifice through which laser radiation is directed to the tissue and through which waste products are sucked into the tubular channel; and

the tubular channel having an inner wall which has at least one outlet opening for a gas in a vicinity of the orifice and wherein flow of gas is directed to the center of the tubular channel;

the arrangement having:

a treatment phase in which the laser radiation is directed to the eye and the gas flow is interrupted; and

a cleaning phase in which the laser radiation is interrupted and the gas flow is directed to the center of the tubular channel;

wherein the treatment phase and the cleaning phase are alternated in harmony so as to provide the laser radiation impinging on the tissue with a uniform energy density.

14. (Original) The arrangement according to claim 13, further comprising a shutter that switches on and off the gas flow.

15. (Original) The arrangement according to claim 14, wherein the shutter includes a rotatable shutter having rotary perforations.

16. (Original) The arrangement according to claim 13, further comprising:

a shutter that switches on and off the gas flow; and

a synchronization control device coupled to the shutter and operable to control the switching between the cleaning phase and the treatment phase.

17. (Original) The arrangement according to claim 16, wherein the synchronization control device turns on the laser radiation for a predetermined number of laser pulses, turns off the laser radiation, and then controls the shutter to switch on the gas flow for a predetermined time period while the laser radiation is turned off.

18. (Original) An arrangement for the suction removal of waste products including smoke and tissue particles in the ablation of biological tissue by laser radiation for use in eye surgery, comprising:

a tubular channel having an orifice through which laser radiation is directed to the tissue of the eye and through which waste products are sucked into the tubular channel; and

the tubular channel having an inner wall which has at least one outlet opening for a gas in a vicinity of the orifice and wherein flow of gas is directed to the center of the tubular channel and away from the tissue of the eye so as to prevent the tissue from being dried out .

19. (New) A process for the removal of biological tissue by means of laser radiation, including for photorefractive keratectomy, comprising the steps of:

removing the waste products occurring during removal of material, including smoke and tissue particles from the treatment site;

not crossing an outputted laser beam and, in so doing, not affecting the intensity of the laser radiation;

wherein waste products are removed by a gas flow or air flow which is not directed towards the treated tissue and which substantially does not flow over the treated tissue in order to prevent drying out of the treated tissue.

20. (New) The process according to claim 19, wherein initially a portion of total tissue to be removed is removed, the treatment is then interrupted and the air which is located in a radiating direction of the laser beam and which includes waste products such as smoke and tissue particles is sucked out during the interruption and replaced by air that is not contaminated by waste products, whereupon the treatment is resumed.

21. (New) The process according to claim 20, wherein a number of partial treatments are carried out and, between these partial treatments, the air with impurities can be sucked away and these process steps are alternately repeated until the tissue removal is completed.